

-14-

- I
1. A method of making an aluminum or aluminum alloy sputter target adapted for sputtering of a flat panel display comprising providing molten Al or Al alloy, adding to said molten Al or Al alloy an amount of between about 0.01 - 2.00 wt% Si to form a molten alloy mixture, forwarding said molten alloy mixture through
5 a filter element to remove inclusions therefrom, and allowing said filtered alloy mixture to solidify.
 2. Method as recited in claim 1 wherein said filter element is a sintered ceramic filter.
 3. Method as recited in claim 2 wherein said filter element is a sintered alumina having a grit size of about 2 to about 14.
 4. Method as recited in claim 3 wherein said filter element has a grit size of about 8.
 5. Method as recited in claim 1 wherein said Cu is present in said molten alloy in an amount of about 0.01 to 3.00%.
 6. Method as recited in claim 1 wherein said molten alloy mixture is Al 0.5 Cu 0.5 Si.
 7. Method as recited in claim 6 wherein after said forwarding of said molten alloy mixture through said filter element said mixture is substantially free of inclusions of the size of about 400 μm or greater therein.
 - II
8. In a method of sputter coating a flat panel display from an Al or Al alloy target, the improvement comprising providing a target that is substantially free of macroparticles of the size of 400 μm or greater therein.
 9. A method as recited in claim 8 wherein said Al target comprises an amount of Si therein present in an amount of about 0.01 - 2.00 wt%.

-15-

10. A method as recited in claim 9 wherein said Al target further comprises an amount of Cu therein present in an amount of about 0.01 to 3.00 wt%.
11. A method as recited in claim 10 wherein said target is Al 0.5 Si 0.5 Cu.
- III
12. Sputter target comprising Al or Al alloy sputter material, said target having a sputter track area adapted for increased consumption of said sputter material therein, said sputter track being substantially free of inclusions of the size of 400 μm and greater.
13. Sputter target as recited in claim 12 comprising Cu present in an amount of about 0.01 - 3.00 wt%.
14. Sputter target as recited in claim 13 further comprising Si present in an amount of 0.01 to 2.0 wt%.
15. Sputter target as recited in claim 14 wherein said target is Al 0.5 Cu 0.5 Si.
- IV
16. Sputter target comprising a face area of target material to be sputtered onto a desired substrate, said target material being substantially free of inclusions in said target material of the size of 800 μm and greater.
- V
17. Sputter target as recited in claim 16 wherein said target material includes a sputter track having a sputter track area adapted for increased consumption of said target material thereat during sputtering, said sputter track being substantially free of inclusions therein of the size of 400 μm and greater.
18. Sputter target being substantially free of inclusions of the size of 400 μm and greater.

-16-

19. In a cathodic sputter coating system of the type having a cathode and an anode, a sputter target operatively associated with said cathode and a flat panel display substrate proximate said anode for coating of said substrate by material dislodged from said target, said system operating at a power density of about 16 W/cm² and greater, the improved method comprising sputtering a target comprising a metal or metal alloy in said system, said target being substantially free of inclusion defects on the size of 800 μ m and greater therein.
20. Method as recited in claim 19 wherein said target is Al or Al alloy.
21. Method as recited in claim 20 wherein said target further comprises Cu therein, present in an amount of about 0.01 - 3.00 wt%.
22. Method as recited in claim 20 wherein said target further comprises Si therein, present in an amount of about 0.01 - 2.00 wt%.
23. Method as recited in claim 22 wherein said target is Al 0.5 Cu 0.5 Si.
24. Method as recited in claim 19 wherein said target is substantially free of inclusion defects therein on the size of 400 μ m and greater.